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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/499,060	02/04/2000	Christophe Garnier	98GR22045417	9699

27975 7590 03/17/2004

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EXAMINER

CUNNINGHAM, TERRY D

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/499,060

Applicant(s)

GARNIER ET AL.

Examiner

Terry D. Cunningham

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-37 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-37 and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 February 2000 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-37 and 40 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art Fig. 1 in view of Tanigawa (USPN 4,814,724) and to Lauffenburger (USPN 5,254,957).

Applicant's prior art Fig. 1 discloses a ramp generator having a broad current source Ig1 with no expressed teachings of the structure thereof. The reference to Tanigawa discloses in Fig. 4 a specific current sink comprising a "current mirror" which has the advantage of gain control. It is notoriously well known that to modify a current sink circuit, as seen in Fig. 4 of Tanigawa, to a current source circuit, such requires changing the conductivity types of the transistors and the polarities of the power supply. Therefore, it would have been obvious for one skilled in the art to modify the circuit of Fig. 4 of Tanigawa to be a current source circuit as is notoriously well known in the art. Further, it would have been obvious for one skilled in the art to use the specific current source of Tanigawa, modified as discussed above, for the broad current source Ig1 of Applicant's prior art Fig. 1 for the expected advantage of obtaining a constant current with gain control.

Additionally, in the reference to Tanigawa there is no specific discussion of MOS transistors. However, it is notoriously well known that bipolar transistors and MOS transistors are art-recognized equivalents. Additionally, it is notoriously well known that MOS transistors have reduced leakage current. Therefore, it would have been obvious for one skilled in the art to use MOS transistors in place of the bipolar transistors of Caron due to the doctrine of equivalents and to obtain reduced leakage current.

With the inclusion of MOS transistors in the rejection to all the claims, it is now necessarily true that the operational equation has a square element in it, as provided in line 11 of page 6 of the specification. Examiner further contends that since a diode-connected MOS transistor necessarily has a gate-to-source voltage effectively equal to the threshold voltage thereof, the  $V_{GST}-V_{th}$  (discussed for transistor T4 on pages 5 and 6 of the specification) must be negligible. Thus, regardless of the value of the “resistance  $R_e$ ”, it is necessarily true that  $R_e \times I_{g2} \gg V_{GT}-V_{th}$  (see line 6 of page 6 of specification) for elements 9 and Q2 of Tanigawa. This, being the case, the above modification will have the claimed operation of the “capacitance charging current” being “proportional to a square of a ration of the second resistance and the first resistance”.

Examiner has fully considered Applicant’s remarks for the above rejection and has not found them to be persuasive. Applicant argues that “it is not necessarily true that  $R_e \times I_{g2} \gg V_{GST4}-V_{th4}$  for elements 9 and Q2 of Tanigawa” and that “Such a choice is not disclosed in Tanigawa.” Examiner disagrees with this statement. As statement previously,  $V_{GST4}-V_{th4}$  will be nominally zero. Further, is required that resistor R1 be of sufficient size (i.e., greater than zero) and that the current  $I_{g2}$  be of sufficient value (i.e., greater than zero) for the circuit to

operate as a current mirror. Further, it is well known the current mirrors having a squaring function component to them.

Applicant further remarks "Tanigawa not being suitable for semiconductor circuit integration will now be provided" due to the new recitation of the circuit being "CMOS". However, the above discussed combination is "CMOS".

And lastly, Applicant sites Col. 2, line 2, of Tanigawa and then remarks "the resistance R in Tanigawa is not produced in semiconductor technology." This statement is not even understood. The discussion in Col. 2, line 2, of Tanigawa is clearly discussing when the prior art circuit is using a variable resistor. However, the invention to Tanigawa is using a fixed resistor and a fixed resistor is what is being provided for in the above rejection. Reference is also made to the current mirror configurations Figs. 1 and 2 of Tanigawa.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terry Cunningham whose telephone number is 571-272-1742.

The examiner can normally be reached on Monday-Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TC  
March 10, 2004

  
Terry D. Cunningham  
Primary Examiner  
Art Unit 2816